



Dendrobates tinctorius
(2 White morph variants)

AMERICAN DENDROBATID GROUP

Newsletter No. 34

October-December 1997



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Ectotherm Scientific

STATEMENT OF PURPOSE

The purpose of the American Dendrobatid Group (ADG) is to educate enthusiasts and distribute information on all aspects of Dendrobatid husbandry and captive propagation. To develop better communication between Dendrobatid breeders and other frog breeders. The ADG is also interested in the maintenance and propagation of Mantellid frogs, Atelopid toads, and other unusual frogs and toads. This Newsletter appears four times a year at a cost of \$15.00 per calendar year. Back issues are \$3.00 each, or on a yearly basis: 1992 is available for \$5.00; 1993 and 1994 for \$10.00/year, and 1995 for \$12.50, and 1996 for \$15.00.

Subscriptions, comments, articles, photographs, etc. should be sent to Charles Powell (2932 Sunburst Dr., San Jose, CA 95111 Tel.: (408) 363-0926). Fax: (408) 972-2182. E-mail: powell2@Ave.net

Notes from the Editor

First I want to thank everyone who has made the ADG Newsletter such a wonderful publication over the past year. It is only because people have submitted articles, pictures, etc. that the ADG Newsletter is what it is. For their help and submissions I would like to thank the following people: Jack Frenkel, Ron Gagliardo, Dirk Jorgens, Kay Klausing, Matthias Kneller, John Lewis, Brian Monk, Daniel Muelemans, Tony Packer, Bern Pieper, Alex Sens, Marc Staniszewski, Ken Uy, and Gerd Voss. I would expressly like to thank Ken Uy for his continuing beginners column which is a wonderful addition to the Newsletter. Thanks everyone (and I hope I haven't left anyone out). I would also like to thank all the people who made Frog Day the success it was - thanks everyone.

Back in ADG Newsletter 32 I asked if people were interested in making the American Dendrobatid Group a public, non-profit organization and if so who would be willing to help make it so. Well here are the results - only one person was willing to help make the ADG into a public institution. So as you can all imagine it will remain as it is.

One last thing - please fill out the enclosed 1998 membership form and mail it in. The next Newsletter is already in the works and should be out soon. Don't miss it! And thanks for your support of the ADG.

SURVIVING THE SIPALIWINI IN SEARCH OF *DENDROBATES AZUREUS*

Ron Gagliardo
The Fuqua Conservatory
Atlanta Botanical Garden

In August 1997 I had the great privilege of joining a group of expert herpetologists on a "once-in-a-lifetime" journey to one of the most remote areas of South America, the Sipaliwini Savanna in southern Suriname. Covering an area about the size of Georgia and supporting a total population of only 400,000 people,

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Suriname contains some of the most pristine areas left on the planet - nearly 75% of the country is covered in undisturbed forest! The focus of this expedition was to study the blue poison frog, *Dendrobates azureus* and to obtain permission to legally collect and bring to the United States a small group of animals to establish a properly managed captive population. Most of the frogs currently in the hobby and in institutions are decedents from a very limited number of wild caught animals and captive imports from Europe, and breeding has gone mostly unmanaged for years now. In June 1996, staff from the National Aquarium in Baltimore made a pilot trip to this area to lay ground work for future studies in the area.

My travel companions for this trip included Jack Cover, Curator of Rainforest Exhibits at the National Aquarium in Baltimore (the leader of our expedition), Robin Saunders, Curator of Amphibians at the Cincinnati Zoo, and Anthony Wiesniski, Curator of Reptiles at the Baltimore Zoo. Our group met on a Friday morning in Miami to begin the long journey to the Sipaliwini Savanna. After a 10 hour layover on the Caribbean island of Curacao, we landed in Paramaribo, the capital of Suriname. The first full day was spent making last minute preparations and meeting with staff from Conservation International (CI) Suriname who organized the logistics for our travel. With all the physical and mental preparations in place, we had one more very important task to accomplish - to obtain permission to study the frogs. The next morning we flew into the interior to the Tirio (pronounced "tree-oh") Indian village of Kwamalasamoetoe to meet with the "Gramon" or Chief. Although the Suriname forest service issued permits to conduct our study and even collect a small number of animals, this could not be accomplished without the consent of the Indians. The Sipaliwini area is under Tirio Indian jurisdiction, so all activities there must be approved by them in advance. The Indians are quite concerned about *Dendrobates* in general, and especially *D. azureus*, which they call "Okopipi." Because the actual population status of *D. azureus* was not clear at the time, permission was granted only to study, not to collect any animals. After our meeting with the chief, the plane took us to the airstrip at the edge of the Sipaliwini Savanna. Here we met with our indian guides and CI staff for last minute preparations for a 2 day boat trip down the Sipaliwini River. Our ultimate goal was to reach der Vier Gebroeders or the Four Brothers Mountains, an area that the Indians referred to as "Mamia." This is where Hoegmoed first discovered *D. azureus* in 1968. One of our primary goals was to find new occurrences of *D. azureus* north of its type locality. After two days on the river, we made a difficult hike across the hot grassy savanna to a stop where we set up a base camp. This base camp was about about 45 minutes walking distance from the type locality. It did not seem possible that a Dendrobatid frog (or any other frog for that matter) could live anywhere near such a hostile environment. Some parts of the savanna were so barren that it seemed as if we where walking across the surface of the moon. At one point, Robin produced a thermometer from her shirt pocket that read 127 degrees fahrenheit!

Fortunately, we survived the initial hike, set up camp and prepared to visit the Okopipi in it's natural habitat. The frogs were described by Hoogmoed (1969) from isolated forests within the savanna. These "forest islands" were on the western slopes of the Vier Gebroeders. These "forests-islands" consists of large, old-growth trees with expansive buttress roots, huge boulders, and intermittant spring-fed streams running across and down the slopes. August marks the beginning of the dry season, so frogs were not as common as in Cover's earlier expedition in June 1996 (wet season). Although during a heavy rain one particular afternoon, Robin and I took refuge under some large boulders. Within minutes we had *D. azureus* coming out from under our feet! It was

truly a bonding experience between Robin, myself and the frogs! Here was the frog which is instilled in many of our minds as the “cover shot” of so many natural history publications and products. It occurred to me how much we take for granted this beautiful blue frog, and the others we keep as well. Having travelled so far and long to see this animal in nature certainly gave me a new appreciation for the ones back home in the terrarium!

We spent the next 5 days exploring the Veir Gebroeders, finding *D. azureus* in two new locations removed from the type locality. Tadpoles were discovered in water collected in palm cataphylls and boots. We observed, for one of the first times in nature, tadpoles in the axils of a bromeliad (*Aechmea* sp.). Some adult frogs were found hiding in another bromeliad, presumably to keep moist, as it was on a high, dry ridge near the edge of the forest. This indicates that they may seek moisture in places other than under boulders in the stream bed. We were not given clearance to collect frogs at this point, so we headed back to the airfield to start the second leg of our journey to the northern “forest islands.”

The second part of our journey took us northeast from the Sipaliwini airfield on a trail leading to the village of Pouso Tirio in Brazil. There are reports that *D. azureus* and *D. tinctorius* occurred together along parts of this trail. After a days hike, we set up camp at the edge of the penninsular “forest island.” A quick search of the area turned up several *D. tinctorius*, including a juvenile hiding under a decaying log. This morph of *D. tinctorius* is similar to the “cobalts” that are currently around in the hobby. One individual had a more “azureus-like” patterns of blue with black spots on its back with the typical yellow head of *tinctorius*, suggesting a close relationship between these two species. The two striped form of *Epipedobates trivittatus* was also found here. This habitat is somewhat like that of *D. azureus* with large boulders, some buttress roots and lots of leaf litter. The main difference is that the primary ground cover here, is a dwarf bamboo, rather than the *Selaginella* seen at and around the type locality of *D. azureus*.

Our next trek took us miles north of the *tinctorius* site, through open savanna. We used maps and GPS (Global Positioning System) meters to locate ourselves as we discovered other places where we thought we might find *D. azures*. Unfortunately after two days of searching these northern islands we did not turn up any additional sites with *D. azureus*. The herbaceous plant diversity was noticeably lower in these “forests islands” (which also seemed drier) than those at the Vier Gebroeders. With this information we returned to the Sipaliwini airfield after a brief stop at two other “forest islands” that produced nothing of interest. But a little searching in the forest near the airstrip turned up some interesting amphibians including *Bufo typhonius*, *Epipedobates pictus* and one undetermined *Colestethus* species.

At the eleventh hour, just before our departure, we were granted permission to collect 20 Okopipi! With the onset of the dry season the water level at a critical low and only the smallest of boats could return by river to “Mamia.” A skeleton crew including Jack, Anthony, one CI person and 2 indians made this quick trip to try and collect some frogs. The next day they returned with 20 *D. azureus*! These animals will constitute the first carefully managed breeding group in the U.S. The genetic diversity in these frogs should sustain a viable population for our lifetime, at least! The *D. azureus* we collected will also be compared to *D. tinctorius* by DNA analysis to better distinguish (or not) between the two species.

The Tirio Indians certainly hold the Okopipi in high regard and are interested in it's continued survival. There are reports of smuggling of *D. azureus* to Europe. If true, these may hamper

efforts to conserve this precious species. If you get the opportunity to visit the Okopipi in nature, I suggest you do. You will surely understand what a remarkable animal this is to be able to survive where it does. My only other suggestion is to keep this in mind when you are observing your own Okopipi. Perhaps they will then seem even more beautiful and unique!

Reference

Hoogmoed, M. S., 1969, Notes on the herpetofauna of Surinam III.-A new species of *Dendrobates* (Amphibia, Salientia, Dendrobatidae) from Surinam. Zoologische Mededelingen, 44(9): 133-141.

BEGINNER'S COLUMN

Preparing for your first dart frogs

Ken Uy <kenuy@earthlink.net>

Before you even get your first frog for that beautiful vivarium that you've set up, make sure that you have a steady supply of frog food. Unfortunately, most pet shops do not stock live insects that are small enough for dart-poison frogs, but there are ways to keep your frogs well fed in spite of that.

Sweepings done with a fine insect net through a pesticide-free garden or field can supply enough insects through most of the year for fortunate hobbyists. The sweepings should be sorted to remove any insects that are too large for the frogs, and any that might bite back or otherwise hurt them. The main advantage of using sweepings, besides the fact that they're free, is that wild insects are much more nutritious than cultured ones because of their highly varied diets. Unfortunately, sweepings are not practical for everybody. Most people have to purchase or raise their own food insects. This means that cultures have to be set up and established way in advance of acquiring the frogs, or a reliable supplier located, so that a steady supply of food is established.

Fruit flies are probably the commonest cultured food source for dart frog hobbyists. There are two types of flies which are usually cultured: *Drosophila melanogaster*, the small prolific genetics experiment variety that is available in wingless and flightless forms, and *D. hydei* which is slower to breed, but larger and is capable of flying, but doesn't. Both types can be cultured using commercially available media, or on home made formulas based on fruit or starchy food and yeast.

Crickets are often sold at pet supply stores, but they are seldom available at the proper size for dart-poison frogs. Most dart-poison frogs need newborn (pinhead) to one week old crickets, and often times only stores that have a large reptile department will carry them. They can be ordered in quantity from supply houses, or crickets may be raised at home [see ADG Newsletter 19: 1-4]; both of these options may be more economical if large numbers are required.

Waxworms are a good supplemental food for dart frogs, but the size they are sold in is generally too large. The only way to get the smaller sizes is to breed them yourself, by allowing some of the commercial waxworms to pupate and turn into moths. Then allow these to breed using a mixture based on wheat bran and honey as the culture medium. Waxworms are fattening and so should be used sparingly, but they can be valuable in helping thin frogs gain weight.

Flour beetles are easily cultured using a medium based on whole wheat flour [see ADG

Newsletter 8: 1-2]. Most frogs may reject the adult beetles, but the larvae are often a favorite.

Springtails are useful for feeding tiny froglets, and even the adults of most dart frogs enjoy them [see ADG Newsletter 6: 1-2; ADG Newsletter 25: 6]. They can be cultured on wet moss, or tree fern slabs, or even peat moss, and should be fed powdered fish food flakes. Unlike most of the other cultured food insects, springtails need to be kept relatively cool or the cultures may crash.

All cultured food insects should be offered nutritious food, especially before they are given to the frogs. They should also be dusted with a vitamin supplement like one of the Nekton® products or at the very least a calcium supplement if possible, every other feeding or so. Do not supplement with every feeding, and try to rely on boosting the gut contents of the prey items as much as possible.

When you have a steady source of frog food established, its time to start shopping for frogs. Choose your sources carefully; cheaper isn't necessarily better. Wild caught frogs may sometimes be less expensive than captive bred ones, but they often have a much high mortality rate, and may need expensive veterinary treatments to get them healthy. Captive bred frogs, on the other hand, are usually healthy and well-established and will give you much less problems. Another important factor is that captive bred frogs are not poisonous like wild caught ones, probably due to changes in their diet in captivity. Toxicity can be especially important if one wishes to mix different species in one tank; wild caught frogs may poison each other. For beginners, captive bred frogs are the best way to go.

A few pet shops may carry dart-poison frogs, especially if they specialize in reptiles and amphibians. When buying from pet shops, try to determine where the frogs came from, if they were wild caught or captive bred, and make sure that the frogs are kept under good conditions and not overcrowded. If possible, observe the frogs over a week or more before making your selections.

Many hobbyists order through mail order sources to get the species they want. The best mail order sources are breeders that specialize in dart-poison frogs; they will usually offer guarantees for healthy animals. Mail order sources often have a much wider variety of frogs to choose from, often at lower prices (before shipping and handling) than pet shops, but you'll have to trust the seller to pick out good specimens for you. When buying from a mail order source, try to do it when the weather is fair, otherwise the frogs may be subjected to too much stress while in transit. Local breeders are probably your best source for your first dart-poison frogs. They usually take excellent care of their animals, and you get to pick your animals from what's being offered for sale. If you're lucky, you also get to see their setups, and obtain tips on how to best take care of your new frogs.

Now comes the fun part - what kind of frogs to get? If you've just started out with dart-poison frogs I recommended that you try one of the cheaper, hardier species first. That way if you make a mistake, it won't be such a blow on your pocketbook and cheap doesn't necessarily mean ugly. Go slow, and concentrate on one or two species to start with. *Epipedobates tricolor* is probably one of the best frogs for beginners. Tricolors are little reddish frogs with, usually, three light stripes running down their back and sides. They are inexpensive, hardy, and are quite easy to feed because they usually aren't too picky about the size their food, eating anything that can fit into their mouth. Tricolors are also quite active and the males call frequently starting months before they reach sexual maturity. Another excellent choice and hearty eater is *Phyllobates vittatus*. These frogs are a bit larger than *E. tricolors*, and are mostly shiny black on their back, with two gold strips

down the sides and greenish legs. They can take relatively large crickets, even the "small" size commonly offered at most pet stores. These frogs can be rather shy, but the males call with sweet twitterings, making their presence known even while in hiding.

The larger dart frogs, *Dendrobates auratus*, *D. leucomelas* and *D. tinctorius*, are also excellent beginner frogs and are commonly offered for sale. *Dendrobates auratus* is most often a metallic green with shiny black or bronze markings, but sometimes a blue morph is available. *Denrobates leucomelas* is usually yellow or orange, with black stripes and splotches - a frog in Halloween colors. *Denrobates tinctorius* is found in a wide variety of colors forms, most with legs that range from pale to dark blue with black spotted, and backs that may be yellow, orange or white, with black markings. Any of these frogs are good started frogs and the decision of which to pick depends on how much you want to spend and your personal preference.

All the above frogs are mostly terrestrial in habit, so they do not require tall terrariums. They can and do climb, however, so branches and lots of plants won't hurt. There are smaller, more arboreal dart frogs like *D. pumilio* and *D. imitator*, but these are often wild caught and may require extra care to get properly established. There are a few other species which usually occupy an arboreal niche, but they often aren't as commonly available as the terrestrial species. *Dendrobates imitator* and *D. ventrimaculatus* are sometimes available as captive bred frogs, and are easily kept as long as a good supply of tiny food insects is available.

After they have some experience some hobbyists want to combine several species of frogs in one tank, much like tropical fish. Before mixing any species, consider their origins and living habits, and your reason for keeping dart frogs in the first place. If your intention is to breed them then a mixed community tank is not the way to go. You should start with just a small number of one species per tank for better results. The frogs can then concentrate on "doing their thing" without having to compete with other frogs. If you want a lovely chunk of jungle ecosystem displayed in your living room, with no real intention of producing young, then you can combine different species, but select them carefully. Try to pick species that have the same temperature and humidity requirements, but prefer different areas in the vivarium, like a ground dwelling and arboreal species together.

If set up correctly the frogs will breed whether we want them to or not, even in mixed company. Closely related species will even hybridize, and hybrids are often considered undesirable since they mean contamination of species or variety bloodlines that are sometimes hard to come by. However, if a hybrid frog is produced and identified as such, there is no reason they can't make interesting display animals.

When selecting individual frogs, see if you can observe them eating. The frog should not show any sign of being unable to capture and consume prey. They should look plump, with thighs that look filled out and not spindly. Avoid emaciated-looking frogs, even if they appear to be eating well. If fact, if you observe any obviously sick frogs among healthy-looking ones in the same terrarium, you might consider looking somewhere else. If the frogs are well established, they will often be up and about in the terrarium, seeking cover only when disturbed. If they are adults you may even hear the males calling, which is an indication that they are in breeding condition or close to it. Calling is the most reliable way of sexing the frogs, since most of the time males and females look very much alike. Females may be fatter around the belly than males, but that isn't always true. In the *D. tinctorius* species-group the males have much wider toe tips on the forelegs than the

females do, but this is obvious only on mature animals. In some species like *E. tricolor* and *P. vittatus*, the females are a bit larger than the males, but this is reliable only if you have a group of animals that are full grown.

When moving your new frogs to your terrarium they are best captured using a small cup or similar container. Gloves may be used if they are to be caught by hand. The reason for this is to avoid hurting the frogs, since their skins are sensitive and may be harmed by human skin oils. The frogs are transported in containers with small ventilation holes, lined with moist paper or moss. The transport containers should be kept from temperature extremes, and should never be left in a car in the sun. The less time the frogs have to stay in transit, the better.

Once you get the frogs home, it is a good idea to quarantine them, even if they are the only frogs you have at the moment. If possible, have a quarantine tank ready for each individual frog, furnished as simply as possible with easy-to-clean materials. This way, you can observe the frogs and quickly identify any problems. You will also have much less difficulty recapturing the frogs from a quarantine tank than from a well-planted display vivarium, in case you have to treat a frog for any problems that surface after the stress of transport. A plain moist paper towel substrate is probably the best to use at this point, because dropping can easily be collected to be examined for parasites, if so desired. The frogs may hide quite a bit while they get used to their new quarters, so try to disturb them as little as possible while they adjust. While the frogs are in quarantine, make the final checks on your vivarium. Is everything working properly? Are the proper temperatures being maintained, and is the humidity level where it should be?

When the frogs are deemed healthy (usually after 4 to 6 weeks), introduce them to their permanent home by transferring them using the cup method. Make sure that you keep the cup covered while moving the frogs, to prevent any escapes. Lower the cup into the container and open it, and allow the frog to hop out. Avoid dumping the frogs out from a height, since they might be injured. The frogs will probably go into hiding right away once they are in their new home. Provide them with plenty of food to hunt, and leave them alone while they establish themselves. When they feel comfortable with their surroundings, they will start appearing, especially if you feed them at a regular time. Soon, the frogs will establish their territories and begin to behave normally, hunting and calling. Your chunk of indoor jungle is now alive with sound and movement.

NEW LITERATURE

DENDROBATIDS

Daly, John W., Garraffo, H. Martin, and Myers, Charles W., 1997, The origin of frog skin alkaloids: an enigma. *Pharmaceutical News*, 4(4): 9-14.

Kellar, Kenneth J., 1995, Epibatidine: its pharmacological actions and utility for studying neuronal nicotinic receptors. *Neurotransmissions. Newsletter for the Neuroscientist*, XI(4): 1-5.

ADS:

DISCLAIMER

I do not guarantee the quality of frogs advertised, nor the reputation of the individuals that have asked to be included here. All purchases are solely between the buyer and seller.

Rates for business card adds are \$15 per issue or \$50 per year. If you are interested please contact the Newsletter editor.

REPTILE SPECIALITIES (John Uhern, 7473 Foothill, Tujunga, CA 91042 Tel. (818) 352-1796; Fax (818) 353-7381) has various captive breed Dendrobatids and wild imported *Mantella* for sale. Write or call for information.

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For Sale:

Ads for sale of frogs, or requests or offering of breeding loans, etc. are free to members and will run for two issues only, unless the Newsletter editor is notified.

Froglets

Dendrobates auratus 'sky blue' \$85 ea.
Dendrobates azureus (some sexable and adult pairs) inquire
Dendrobates imitator 'green' \$75 ea
Dendrobates tinctorius 'cobalt, bright yellow' \$65 ea
Dendrobates tinctorius 'Emperor Mt.' \$55 ea
Dendrobates tinctorius 'powder blue' \$65 to 75 ea.
Dendrobates tinctorius 'Sipaliwini' (blue, yellow, and/or green) \$225 ea

Dendrobates tinctorius 'yellow back' 95 ea

Tadpoles

Dendrobates auratus 'sky blue' \$50 ea.
Dendrobates tinctorius 'cobalt, bright yellow' \$45 ea (6/\$40 ea.)
Dendrobates tinctorius 'Emperor Mt.' \$35 ea.
Dendrobates tinctorius 'powder blue' \$45 ea
Dendrobates tinctorius 'Sipaliwini' \$150 ea.
Dendrobates tinctorius 'yellow back' 6/\$65 ea (I have dozens!)

Dendrobates azureus \$100 ea.
Dendrobates leucomelas \$25 ea

Dendrobates auratus 'Panamanian, 70% black' \$35 ea.
Dendrobates ventrimaculatus 'Peru, orange' \$50 ea
Tadpoles
Dendrobates auratus 'Panamanian, 70% black' \$25 ea
Dendrobates ventrimaculatus 'Peru, orange' \$40 ea

Dendrobates auratus 'Tobago' \$25 ea
Dendrobates auratus 'Nicaraguan' \$25 ea
Phyllobates lugubris (F1 and F2) \$45 ea

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Dendrobates tinctorius 'cobalt' (F1, Surinam) \$65 ea.
Dendrobates tinctorius 'giant orange' \$125 ea.
Dendrobates tinctorius 'powder blue' \$75 ea.
Dendrobates tinctorius 'yellow back' (F1) \$75 ea.

Greg Sihler
 Arizona Dendrobate Ranch
 P. O. Box 26585-6528
 Tempe, AZ 85285-6528
 (602) 755-0217
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<http://www.primenet.com/~adicus/>

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Dendrobates auratus 'blue' \$60 ea.
Dendrobates azureus (F2, unrelated Wattley blood) \$90 ea.
Dendrobates leucomelas (3 blood lines) \$40 ea.
Dendrobates tinctorius 'cobalt' (F1, Surinam) \$55 ea.
Dendrobates tinctorius 'powder blue' \$60 ea.
Dendrobates tinctorius 'yellow back' (F1) \$60 ea.

10% discount on total orders of 5 animals or more.

Wanted

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 AJ3313@aol.com

Dendrobates tinctorius 'giant yellow back' - adult male
 (I have an extra female to trade if necessary)

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Dendrobates fantasticus, *D. histrionicus* (orange netted from Ecuador; female), *D. imitator* 'red head', any *D. pumilio*, established breeding pair of *D. tinctorius* 'Oyapok', *D. variabilis*, *Phylllobates bicolor* (male), *P. terribilis* (yellow or orange). Greg Sihler (Arizona Dendrobate Ranch, P. O. Box 26585-6528, Tempe, AZ 85285-6528 Tel.: (602) 755-0217; E-mail: Adicus@primenet. Web-page: <http://www.primenet.com/~adicus/>

Societies

AMERICAN FEDERATION OF HERPETOCULTURISTS. A non-profit national membership organization of herpetoculturists, veterinarians, academicians, and zoo personnel involved in the captive husbandry and propagation of amphibians and reptiles. Membership includes the highly acclaimed Vivarium magazine, dedicated to the dissemination of information on herpetocultural accomplishments, herpetological medicine, breeding and maintenance, field studies and adventures, enclosure design and much more. Membership in the AFH is \$28.00 U.S. and \$53.00 Canadian and all other foreign countries. Contact: AFH, P. O. Box 300067, Escondido, CA 92030-0067. Tel.: (619) 747-4948; Fax (619) 747-5224.

INTERNATIONAL HYLID SOCIETY: A non-profit organization dedicated to treefrogs enthusiasts worldwide. "The Bulletin of the International Hylid Society" will be published quarterly. Membership is \$15/calendar year. For information or membership contact: William Brown, 2607 Thomas Road, Valparaiso, IN 46383 USA. Tel.: (410) 737-8013; e-mail: hylid@mindspring.com.

INverteEBraTA: Is a wonderful, funny, bi-monthly, bug-husbandry magazine, which I can highly recommend. It covers the husbandry of any sorts of bugs a person might want to keep and some you don't want to keep, either as pets, or as food for other animals. It also discusses the politics affecting the keeping of invertebrates, contains a wide variety of contributions, and is wonderfully illustrated. Subscription is \$25/year made and mailed to Rino Mascariño, P. O. Box 20721, Los Angeles, CA 90006. Tel.: (213) 227-6566. E-mail: mascarino@earthlink.net.

THE UNITED EUROPEAN DENDROBATE RESEARCH SOCIETY. We publish a quarterly colour journal. Membership within Europe is £10.00 and elsewhere £16.00. For more information contact: Tony Packer, 29 Tiber Gardens, Islington, London, N1 OXE, England. Telephone: 0171 833 0260, Fax: 0171 833 9351, email: Uedrs@btinternet.com

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Adrian Duran (Texas)
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